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DIFFERENT TYPES OF EVALUATION DEVICES

A good deal of behavior can be observed through the senses. We recognize improvement in a 4-H Club boy or girl or an adult leader through watching the person preside or by hearing him talk at a meeting at different times in the light of accepted standards.

We can drive through the country and observe the increase in the recommended soil enrichment practices, a variety of grain, the improvement in livestock, the betterment in farm and home buildings and in yards. We look for evidence of favorable change in the light of what we have been teaching. Even changes in intangibles such as attitudes, interests and personality traits are expressed in overt behavior. Such observation is good, but it is not sufficient.

A. The need for measuring devices.

Different kinds of devices have been designed to measure individual behavior. These are devices which for the most part gather evidence as to a person's knowledge, attitudes, or his activities. Put in another way, what a person knows, feels, or does. These devices take but a few minutes to apply, whereas direct observation of behavior by competent observers often requires many hours or days and is influenced by one's own experiences and understandings.

The questionnaire or device used to evaluate a program should be worked out especially for that particular program. We cannot usually expect to find one readymade because differences in objectives or in the methods of approach make a technique that is effective for one program unsatisfactory for another. However, before constructing a device it is helpful to examine some of those which have previously been used. They may be a source of suggestions for the particular problem upon which we are working and may furnish test patterns for construction.

B. The selection of the measuring device.

In the selection of the kind of devices to be used, two things must be kept in mind: The teaching objective and the evidence for which you need to look to learn what progress has been made in reaching the objective.

In the educational field there are numerous devices which can be used to measure progress toward an educational objective. Some of them are as follows and all of them are designed to record changes in behavior:

1. Knowledge tests. It is important to know whether a person knows information.

Prepared in the Division of Extension Research and Training for use in Extension Evaluation Course, Regional Extension Summer Schools, University of Wisconsin and University of Arkansas, 1955.

2. Understanding tests. It is important to know whether a person understands or can apply certain acquired knowledge of principles.
 3. Skill or performance ratings. These are used to determine skill being performed or the product resulting. They may show the amount of skill the homemaker has or to what degree skills have been acquired.
 4. Attitude scales. These are used to show how people feel toward things, whether they are for or against certain questions, social facts or problems.
 5. Value scales. These are used to determine the value people place on things and to show what people think is important.
 6. Interest checks. These are used to find out in what people are interested.
 7. Adoption of practices. The adoption of a recommended practice is frequently used in extension research as evidence that the farmer or homemaker has changed behavior and acquired new knowledge, skill, and understanding.
- C. Some illustrations of devices.

1. Knowledge tests.

Obviously it is essential to impart many facts in order to teach any subject matter in extension. When we test we can ascertain rather easily whether the persons taught acquired this knowledge. But we assume that they understand those facts which they have learned and certainly we should not assume that they are able to apply their knowledge. If our objective were to develop understanding it is necessary to extend our questions in order to learn if this knowledge is comprehended and it is applied. In the schedule used in the Winston County, Mississippi, study ^{1/} are some illustrations of questions which attempt to get at this knowledge only. Questions on practices adopted or action taken and understanding are included in the same schedule and will be referred to later.

A few examples are given below. The questions are taken from a schedule that was used by interviewers in Winston County, Mississippi.

Pastures:

What is the best way to prepare pastures for seeding? (Check answer or write in if can't check)

1. Plant on old sod
2. Plow and disc and plant immediately
3. Fertilize, plow, disc, or harrow and let
stand 30 days and plant
4. Other ways

...

^{1/} Studying Extension Work in Winston County. October 1948. Ext. Bul. 144 (DM), Extension Service, Mississippi State College, State College, Mississippi.

A second question from the same schedule:

What is the best way to improve the grade of your cotton?

9000 2

. . .

A third question from the same schedule:

Foods and nutrition:

1. What does the term "basic seven" foods mean to you?

Another example on "Care of floors" was taken from an Ohio questionnaire. This question was designed to be given at the beginning and again at the end of a project lesson in the county. The home demonstration agent found out that this part of the information was fairly well known before the project started and therefore it did not need to be emphasized.

Care of Floors

Place a check (✓) in one of the columns at end of statement to show your answer.

	Yes	No	Not sure
1. Linoleum and congoleum are the same			
2. Varnish is the best finish for all wood floors ...			
3. A floor made of oak is harder than one made of pine			
4. Scrubbing an unfinished wood floor with soap and water weekly changes the color of the wood			

2. Understanding tests.

It is important to find out whether a person understands or can apply certain acquired knowledge.

Comprehension or understanding can usually be inferred from what the respondent says or does. Present him with a new situation and see whether he can apply these basic principles taught him. The situation must be natural and not so new but that he can see the similarity to former situations. There are various levels of understanding and degrees of understanding. Trying to measure at too high a level or too ideal a level will be disappointing. On the other hand, to measure at too simple or too low a level will not tell you whether the person can apply the knowledge at his own level of living and working.

Different problems or situation statements are used in home economics extension work to test the judgment of the person being taught in the use of principles. ^{2/}

In the teaching of selection of accessories for the basic dress or suit --

For example, (1)

The home demonstration agent or a local leader wears a basic dress or a basic suit and teaches the selection of accessories to be worn with it.

After the teaching is finished a second full set of accessories including hats, shoes, scarfs, jewelry, purse, and the like are brought before the group. The members in attendance are asked to select appropriate accessories for the agent or leader to wear for two or three different designated occasions. This will indicate if they know the principles and if they can apply them.

For example, (2) in housing:

In teaching farmstead planning in workshops to those farmers and homemakers interested in building, there are certain principles taught as to location of buildings on the farmstead.

The extension worker asks each husband and wife present to draw a rough plan of their farmstead, showing slope of ground, direction of wind, view, location of highway and driveway. Then using circles to indicate buildings, put in the house and the farm buildings, applying the principles of farmstead planning. This tests their knowledge of principles and the ability of the husband and wife to apply principles to their own situation.

For example, (3) in home furnishings:

In teaching art principles and the application of art principles in design and color in the home at the local leader training meeting, a mimeographed sketch of a living room including doors and windows is given each leader. Each person at the meeting is asked to arrange the furniture according to principles taught. Then swatches of materials and wall paper are used to work out the color scheme for the room.

^{2/} The three examples were worked out by Helen Noyes, Lila B. Dickerson, and Marjorie Lusk, specialists, Extension Service, Washington State College, Pullman, Washington, 1955.

Problem-solving devices can be used to measure understanding. The following is an example of the type of questions that can be used by 4-H Club boys and girls:

Example: 3/

A farmer wishes to market his spring crop of hogs before the usual drop in market price. Which of the following practices will help? (Check one or more.)

- ☐ 1. Have pigs farrowed in March or early April.
- ☐ 2. Have pigs farrowed late in May.
- ☐ 3. Put brood sows and litters on pasture with self-feeders of shelled corn and tankage in separate compartments.
- ☐ 4. Wean the pigs at 6 weeks of age.
- ☐ 5. Provide self-feeders after weaning.
- ☐ 6. After weaning, put pigs in dry lot and feed entirely on corn.
- ☐ 7. Limit the feed during the summer and have hogs on fall crops of corn.

Reasons: (Check the statements below which represent your reasons for choosing the practices you checked in the preceding list.)

- ☐ a. The usual market drop which affects the spring crop of hogs starts in September.
- ☐ b. The usual market drop which affects the spring crop of hogs starts in November.
- ☐ c. Under favorable conditions hogs will be ready for market at 6 months of age or less.
- ☐ d. Hogs gain most rapidly when hand fed.
- ☐ e. Hogs can usually be produced most cheaply on a limited grain ration for the first few months, followed by heavy feeding.
- ☐ f. Brood sows and their pigs are able to balance their own ration when provided "free choice" of tankage and corn.

3. Skill or performance ratings.

There are two reasons for measuring skills: (1) To find out if the people have acquired a particular skill that has been taught and (2) to find out how many skills have been attained.

Skills that are important for the clientele to learn are listed, criteria set for measuring the skills and some devices prepared for use.

3/ Adapted from G. P. Deyoe, "Test for Understandings and Problem-Solving Ability in Agriculture." Danville, Illinois: Interstate Publishers, 1937.

Frutchey, Fred P., Deyoe, George P., and Lathrop, Frank W. "The Measurement of Understanding in Agriculture." Chapter XIV, 45th Yearbook, Part I, of National Society for the Study of Education, 1946.

Usually score cards and rating scales are used to measure skills, performance, and abilities. They are used extensively in Extension at fairs and other events in judging products and in setting standards of quality. The product or skill to be rated is carefully analyzed, each aspect is considered separately.

It is necessary not to have too many points on a score card or rating device and there should be a description of two or more levels of quality for each aspect of the product skill or ability to be rated.

The example below is a device for judging selected skills in a 4-H Club clothing project. With each skill is explained exactly what the "rater" should look for in rating that particular skill.

Example Score Card for Judging Garments
(Adapted from device constructed by Lois Corbett)

Michigan Extension Service for Judging 4-H Club Clothing Projects

Club member _____ Age _____ Local leader _____ Rater _____

Directions: Rate garment on each item which applies to it, rating 1, 3, or 2, depending upon whether the quality corresponds to the description in the left-hand column, or the right-hand column, or falls between the two. Add scores at bottom of page.

Two or three items are shown for "construction of a dress"

State- ment No.		1	2	3	Total score
20.	Skill in	Crooked, too far		Stitching even,	
	machine	from edge; not		very close to	
	stitching	alike on both		edge, alike on	20
		sides; stitch		both sides;	
		improper length		stitch proper	
				length	

Local leadership rating scales.

Extension workers have used different types of rating scales with local leaders. Some examples are taken from "An Analysis of 4-H Local Leadership." 4/

Examples:

Please rate the local leader on as many of the following types of leadership jobs as this leader performed:

Types of leadership jobs	'Fair	'Good	'Very good	'Job not performed
a. Preparing for, attending, and conducting 4-H Club meetings	'	'	'	'
b. Assisting members outside of club meetings with project work, records, and visiting homes	'	'	'	'
c. Training members for judging work and demonstration teams	'	'	'	'

(Four other items not included in this example)

Point rating scales are sometimes used which indicate a scale of values: 1 to 5 standing for unsatisfactory, fair, good, very good, and excellent, respectively.

For example:

How effective was this leader's work in developing demonstration and judging teams?

'	'	'	'	'	'	'	'	'
/Unsatisfactory	/Fair	/Good	/Very good	/Excellent				

4. Attitude scales.

The extension worker is concerned about the attitudes and beliefs of people. People sometimes indicate a disposition for or against something, or sometimes they indicate uncertainty. A person may be favorably inclined toward high rigid price supports, he may favor flexible price supports, or he may be in doubt as to which he prefers. Attitudes and beliefs can be identified only when people are in a situation in which they are confident that they are free to express themselves as to what they feel or think.

4/ This analysis was developed by Mr. C. B. Wadleigh, 4-H Club Leader, New Hampshire, in evaluating the leader-training program in New Hampshire - 1947.

"The Michigan State Extension Workers Ballot" illustrates an attitude device with the use of multiple choice questions. The extension worker can express how he feels on a number of questions. There are nine questions. Numbers 1 and 9 only are given in this example. The first question is more general, the last question more specific.

HOW TO VOTE: This ballot gives you an opportunity to express your views on a number of questions related to the Extension Service.

Below each question you will find five possible answers. Read all five answers, and choose the one that comes nearest to expressing the way you feel about the question. Then vote by making an "x" in the box: (x) at the left of the answer you have chosen.

Vote for only one answer to each question. If none of the five answers to a question happens to agree exactly with your own opinion, vote for the one that comes closest to saying what you think about it. If you want to write any comments on the ballot, that will be all right; but be sure to vote on every question by marking an "x". Use the back of the pages for your comments, if you need more room to write. You do not need to put your name on the ballot.

Question:

1. How do you feel about the Extension Service as an institution?
- () There are many serious weaknesses in the Extension Service.
 - () The Extension Service has some weaknesses, but none are too serious.
 - () The Extension Service has about as many good points as bad ones.
 - () The Extension Service is a very worthwhile institution.
 - () The Extension Service is one of the finest institutions in America.

Question:

9. How much help do you get from your State leader in doing your work?
- () Never succeed in getting any real help at all in my work.
 - () Hardly ever has anything helpful to offer.
 - () Is sometimes fairly helpful.
 - () Is usually quite helpful.
 - () Always gives me all the help I could possibly want in my work.

5. Value scales.

Extension workers need to be conscious of how people express their values. What people say and do gives some idea of what they consider important. Knowing people's values is very important in working with people in the farm and home development work now under way in the States.

Value scales are used to determine the value people place on things. Much of what people do is guided by what they think is right and good and their values shift. One question from a value scale ^{5/} is given below. A value scale

^{5/} This example is taken from a value scale developed by Dr. Mattie Pattison, Department of Home Economics Education, Iowa State College, Ames, Iowa.

such as this can be used to find out what people think before the teaching begins and afterward to determine if any change has occurred.

Example:

The Hortons, who have two children, 10 and 12, have saved enough money to make the first payment on a farm. They are considering a farm, near their present home, which seems satisfactory except that there is no power line from which they could get electricity. Another farm, 200 miles away, seems to be as good an investment from the standpoint of farming and all of the buildings are wired for electricity. They would have to leave relatives and some very close friends if they took the farm with electricity. Which farm would you advise them to buy?

Check your answer.

_____ Farm near present home. _____ Farm with electricity.

If you chose the farm near their present home, check statements in the left-hand column. If you chose the farm with electricity, check statements in the right-hand column. Please check not more than two statements. If you wish to check only one statement, place a double check before it.

Farm near present home:

- _____ 1. Children may not do as well if they have to change schools.
- _____ 2. There is pleasure and comfort in staying where one's close friends and relatives are.
- _____ 3. Moving costs will be greater if they move from their present community.
- _____ 4. The kinds of recreation they could enjoy would be limited until they became acquainted.

Farm with electricity:

- _____ A. There is less eye strain with electric lights. Therefore, there is less danger of having headaches or being tired.
- _____ B. Electricity will make the home more valuable.
- _____ C. With an electric radio they could get better reception for more good musical programs.
- _____ D. Electric lights and machinery save work.
- _____ E. If the Hortons move into a new community they may make better social contacts because they own their own home.

6. Interest checks.

An extension program may succeed or fail in proportion to the emphasis which the extension worker puts upon the development and encouragement of interests. Interests indicate likes and dislikes, satisfactions and dissatisfactions.

Interest checks, devices for finding out in what the people are interested, have been used to considerable extent in Extension.

The "Suggested Form For An Interest Questionnaire" illustrates a method of finding out what help rural people are interested in in getting help from the county agent. This is used as a partial basis for program planning.

Suggested Form For An Interest Questionnaire 6/

(In the following list of items, the interviewer will check for each the degree to which the person interviewed is interested in receiving information or other assistance, and methods preferred.)

Item	Degree of interest			Methods preferred
	Check (✓)			
	Much	Some	Little	
1. Selection of a good dairy cow				
2. Organization for community improvement				
3. New varieties of seed				
4. Outlook information on crops and livestock				
5. Methods of pasture improvement ..				
(90 items were included in this list.)				(All extension methods will be keyed as follows and each enumerated for person to select preference: M - Meeting V - Visit C - Circular B - Bulletin N - News story Etc.)

6/ Idea used by Dr. Paul Leagans, Professor of Extension Education, Cornell University, in developing an interest questionnaire in North Carolina.

Satisfactions can be assessed by use of questions.

An example:

How long have you lived in this community?

(a) _____ No. years (b) _____ Entire life

How satisfied are you with the way local government affairs are handled? Would you say you are not at all satisfied, not very well satisfied, pretty well satisfied, or very well satisfied?

(1) _____ Very well satisfied (3) _____ Not very well satisfied

(2) _____ Pretty well satisfied (4) _____ Not at all satisfied

(5) _____ Undecided

Why do you feel this way? _____

7. Practices adopted, or action taken.

Perhaps more of the devices and questions used in extension to measure change are aimed at finding out if the person has adopted the practices taught. In time and energy management certain principles are taught such as "sitting to work," "eliminating some jobs."

Following is an example of two questions taken from a check sheet prepared by a home management specialist. This check sheet was designed to be used before and after the learning experience.

"There are several different things which people do around the house. We are interested in finding out how many women are doing these things. So I would like you to go through the list and check which ones you do."

	<u>Usually</u>	<u>Sometimes</u>	<u>Never</u>
a. In ironing, do you:			
(1) Iron towels	(1) _____	(2) _____	(3) _____
(2) Iron sheets	(1) _____	(2) _____	(3) _____
b. Do you sit to:			
(1) Iron	(1) _____	(2) _____	(3) _____
(2) Prepare vegetables ...	(1) _____	(2) _____	(3) _____
(3) Wash dishes	(1) _____	(2) _____	(3) _____

Practices adopted and methods responsible.

Many of the questions determine practices adopted and attempt to determine methods the respondent thinks are responsible.

An Example from Home Economics 7/

DOES RESPONDENT HAVE ELECTRICITY? Yes (1) _____ No (2) _____

IF YES, a. Do you, yourself, repair your
own electric cords or plugs? Yes (1) _____ No (2) _____

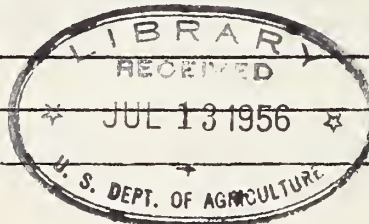
b. If respondent repairs own cords or plugs, where did you
learn to do it?

A second example is taken from the Winston County, Mississippi, study:

(b) Have you done any of the following during the past 3 years:

- | | | |
|----------------------------------|-----------|--------------|
| 1. Seeded pastures | Yes _____ | No _____ |
| 2. Fertilized pastures | Yes _____ | No _____ |
| 3. Mowed pastures | Yes _____ | No _____ |
| 4. Planted for winter grazing .. | Yes _____ | No _____ |
| 5. Is your pasture fenced? | Yes _____ | No _____ |
| 6. Number acres under net wire . | _____ | Number acres |

(c) What results did you get? (Write in answers exactly as given)



2. Cover crops:

(a) Have you planted any cover crops during the past 3 years?

Yes _____ No _____

IF YES,

(b) Of what benefit has this been to your farm?

IF YES to No. 2,

(c) Do you plan to continue this practice? .. Yes _____ No _____

IF NO, ask why?

